

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. – 39. (Cancelled).

40. (Currently Amended) An optical apparatus comprising an optical system that forms a two-dimensional image,

the optical system comprising:

a variable optical-property mirror, and

a driving circuit that drives the variable optical-property mirror,

wherein the variable optical-property mirror is arranged to be decentered from a light-incident-side optical axis, and

wherein the variable optical-property mirror has a reflecting surface that is deformable, and

wherein the reflecting surface is a free-formed surface having only one plane of symmetry.

41. (Currently Amended) An optical system comprising:

a variable optical-property element; and

a plurality of rotationally asymmetric curved surfaces,

wherein the variable optical-property element and the plurality of rotationally asymmetric curved surfaces are arranged along a single traveling path of rays at positions different from one another, and

wherein the variable optical-property element is arranged to be decentered from an optical axis of the optical system, and

wherein the variable optical-property element is arranged between the plurality of rotationally asymmetric curved surfaces.

42. (Previously Presented) An optical system according to claim 98, further comprising an image sensor.

43. - 47. (Cancelled).

48. (Previously Presented) An optical system according to 42, wherein each of the variable optical-property element and the image sensor is disposed on a surface of the optical element provided with the plurality of rotationally asymmetric curved surfaces.

49. (Previously Presented) An optical system comprising:  
a variable optical-property mirror;  
a driving circuit that drives the variable optical-property mirror; and  
an optical element having a light-deflecting function and disposed before or after the variable optical-property mirror in a single traveling path of rays,  
wherein a shape of a reflecting surface of the variable optical-property mirror is deformable,  
wherein the variable optical-property mirror is arranged to be decentered from a light-incident-side optical axis, and  
wherein the optical element has a rotationally asymmetric surface having a shape that defines only one plane of symmetry or no plane of symmetry.

50. – 83. (Cancelled).

84. (Currently Amended) An optical device comprising:  
a variable optical-property element having a light-deflecting function;  
a driving circuit that drives the variable optical-property element; and  
a free-formed-surface optical element having a rotationally asymmetric reflecting surface and a free-formed transmission surface having only one plane of symmetry,  
wherein the rotationally asymmetric reflecting surface defines only one plane of symmetry or no plane of symmetry, ~~and~~  
wherein the variable optical-property element and the rotationally asymmetric reflecting surface are arranged to be decentered from one another, and  
wherein a positional relation between an image surface, the free-formed-surface optical element, and the variable optical-property element remains unchanged during focusing.

85. (Cancelled).

86. (Previously Presented) An optical device according to claim 84, wherein the variable optical-property element is a reflection-type element.

87. (Cancelled).

88. (Previously Presented) An optical system according to claim 41, wherein the rotationally asymmetric curved surfaces of the optical element are reflecting surfaces and are arranged to be decentered from the optical axis of the optical system.

89. – 91. (Cancelled).

92. (Previously Presented) An optical apparatus according to claim 40, further comprising an image sensor.

93. (Previously Presented) An optical apparatus according to claim 40, wherein the optical system forms an image surface on an exit side thereof, and wherein the optical system further comprises an optical element arranged between the image surface and the reflecting surface of the variable optical-property mirror.

94. (Previously Presented) - An optical apparatus according to claim 40, wherein the optical system further comprises an optical element having a rotationally asymmetric optical surface.

95. (Previously Presented) An optical apparatus according to claim 40, wherein the optical system further comprises a rotationally asymmetric reflecting surface, and

wherein the rotationally asymmetric reflecting surface is arranged to be tilted in reference to an optical axis of the optical system.

96. (Previously Presented) An optical apparatus according to claim 95, wherein the rotationally asymmetric reflecting surface defines only one plane of symmetry or no plane of symmetry.

97. (Previously Presented) An optical apparatus according to claim 40, wherein the optical system further comprises an optical element that has a plurality of rotationally asymmetric optical surfaces.

98. (Previously Presented) An optical system according to claim 41, wherein the plurality of rotationally asymmetric curved surfaces are provided on a single optical element.

99. – 116. (Cancelled).

117. (Currently Amended) An optical system comprising:  
a plurality of variable optical-property elements each having a variable optical power;  
and  
an optical element having a rotationally asymmetric optical surface,  
wherein the plurality of variable optical-property elements and the optical element are arranged along a single traveling path of rays,  
wherein the variable optical-property elements and the optical element are decentered from one another, ~~and~~  
wherein the rotationally asymmetric optical surface is a smooth surface directed toward a light-incident side, and  
wherein the variable optical-property elements are arranged to be decentered from one another.

118. – 125. (Cancelled).

126. (Previously Presented) An optical unit comprising:  
a transparent optical element having an entrance surface and an exit surface that is different from the entrance surface; and  
a reflection-type variable optical-property element having a variable optical power, the reflection-type variable optical-property element being arranged integrally with the transparent optical element,

wherein the transparent optical element and the reflection-type variable optical-property element are configured such that light enters the optical element through the entrance surface, is reflected at the reflection-type variable optical-property element, and then exits out of the transparent optical element through the exit surface, and

wherein at least one of the entrance surface and the exit surface of the transparent optical element is a curved surface.